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AUTHOR Marfo, Kofi
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ABSTRACT

Interactions between 25 mothers and their developmentally delayed children (ages 2-5) during 15 minutes of semi-structured free play were coded independently with a global rating scale and a behavior count coding scheme. Correlational analyses were performed around three central themes: (1) the nature of the relationship between maternal directiveness and other maternal behaviors that are traditionally considered to be facilitative of child development, e.g., sensitivity, responsiveness, and warmth; (2) the relationship between directiveness and intrusiveness; and (3) the relationship of directiveness to child developmental competence and on-line child behavior. Results showed that while directive mothers tended to deny their children response opportunities, directiveness did not necessarily preclude or suppress sensitivity, responsiveness, and warmth. No consistent pattern of relationships was found between directiveness and intrusiveness. Across the two coding schemes, maternal directiveness varied significantly as a function of children's level of cognitive competence and behavioral engagement. These findings are discussed in relation to existing conceptions of maternal directiveness and its potential role in handicapped children's development. Includes 37 references. (Author/DB)

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MATERNAL DIRECTIVENESS IN INTERACTIONS WITH DEVELOPMENTALLY DELAYED CHILDREN: A CORRELATIONAL ANALYSIS

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Kofi Marfo, Ph.D.
Associate Professor of Educational Psychology

College and Graduate School of Education
405 White Hall
Kent State University
Kent, Ohio 44242

TEL: 216 672-2294
FAX: 216 672-3407

Running Head: *Maternal Directiveness with Delayed Children*

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ABSTRACT

Interactions between 25 mothers and their developmentally delayed children during 15 minutes of semi-structured free play were coded independently with a global rating scale and a behavior count coding scheme. Correlational analyses were performed around three central themes: (1) the nature of the relationship between maternal directiveness and other maternal behaviors that are traditionally considered to be facilitative of child development --e.g., sensitivity, responsiveness, and warmth; (2) the relationship between directiveness and intrusiveness; and (3) the relation of directiveness to child developmental competence and on-line child behavior. Results showed that while directive mothers tended to deny their children response opportunities, directiveness did not necessarily preclude or suppress sensitivity, responsiveness, and warmth. No consistent pattern of relationships was found between directiveness and intrusiveness. Across the two coding schemes, maternal directiveness varied significantly as a function of children's level of cognitive competence and behavioral engagement. These findings are discussed in relation to existing conceptions of maternal directiveness and its potential role in handicapped children's development.

MATERNAL DIRECTIVENESS IN INTERACTIONS WITH DEVELOPMENTALLY DELAYED CHILDREN: A CORRELATIONAL ANALYSIS

In the 1960s and 1970s, the seminal works of several leading parent-child interaction researchers (e.g., Bell, 1968, 1974; Kessen, 1963; Korner, 1965; Lewis & Lee-Painter, 1974; Schaffer, 1977) culminated in the now well established view of the parent-child interaction process as a system characterized by mutuality, bi-directionality, and reciprocity. Schaffer and Crook (1979) remind us, however, that this view does not necessarily connote equality of influence or of purposefulness between parent and child, especially during the early years; mothers often have "purposes and goals of their own which they need to convey to their children and with which the children are expected to comply" (Schaffer & Crook, 1979, p. 986). Maternal control is the term used in the developmental literature to refer to all those behaviors, verbal as well as nonverbal, that mothers employ to regulate or direct the ongoing behavior and activity of their children during any given interactive episode. Mothers utilize a variety of control techniques "to channel behavior in certain directions, inhibiting some tendencies and enhancing others" (Schaffer & Crook, 1980, p. 54).

However, in much of the research on interactions between parents and handicapped children, mothers' frequent use of verbal and nonverbal controls and directives has come to assume a negative connotation. Directiveness, as this interactional style has come to be labeled, has been portrayed as problematic and potentially counter-productive. One possible origin of the negative connotation associated with directiveness can be traced to a body of correlational research, carried out largely in the 1970s, involving mothers and normal language-learning children (Marfo, 1990, in press). Driven by the conceptualization that at least some of the intersubject variation in children's linguistic competence can be explained by differences in parental interactional style (see Bloom & Lahey, 1978), a number of key studies on maternal teaching style and children's language found an inverse relationship between maternal directiveness and various measures of child linguistic competence (e.g., Nelson, 1973; Olson-Fulero, 1982; Rubenstein & Howes, 1979; White & Watts, 1973). Extending this line of inquiry from the normal child language literature, some of the earliest handicapped child-parent interaction studies addressing the directiveness theme were

concerned specifically with the relationship between the quality of the maternal linguistic environment and the development of linguistic competence in children with mental retardation (e.g., Buckhalt, Rutherford, & Goldberg, 1978; Buium, Rynders, & Turnure, 1974; O'Kelly-Collard, 1978; Rondal, 1977). The typical finding from this line of research, namely that mentally retarded children are exposed to significantly higher amounts of directiveness, has led to the inference that high frequency of maternal directiveness must account, at least in part, for the poor developmental outcomes associated with mental retardation (e.g., Buium et al., 1974).

Additional factors which have contributed to the negative connotation associated with directiveness include the research design typically employed to study the issue and how the findings of this research have been interpreted. Most of the investigations on interactions between parents and their handicapped children have employed between-group designs to compare mothers' interactional styles with handicapped and nonhandicapped children (see Barnard & Kelly, 1990; Field, 1980; Marfo, 1984, 1990; Rogers, 1988, for reviews of this literature). These between-group studies have typically found mothers of handicapped children to engage in significantly more directive behaviors than mothers of nonhandicapped children. Unfortunately, however, these studies have also tended to characterize mothers of handicapped children as a homogeneous group of individuals with a directive interactional style as their common identity (see Crawley & Spiker, 1983; Marfo, 1990, in press). In effect, the presence or absence of a handicapping condition in the child is viewed as the main source of variation in mothers' use of directive behaviors in interactions with their children. In interpreting the relatively more frequent use of directives by mothers of handicapped children, researchers have often implied that these mothers are, by virtue of their high directiveness, intrusive and insensitive to their children's signals (see Crawley & Spiker, 1983).

The foregoing review underscores at least two important directions for research on interactions involving mothers and their handicapped children. First, there is a need for an increased focus on individual differences in the study of directiveness in order to identify variables that may be associated with maternal directiveness beyond the child's handicapping condition. Contrary to the homogeneity myth perpetuated by contrastive designs, the few

studies in the literature that have examined individual differences do suggest that mothers of handicapped children vary considerably in their use of directive behaviors. Crawley and Spiker (1983) found variations in maternal directiveness ratings as a function of differences in the interactional behaviors of Down syndrome children. Additionally, mothers varied in the manner in which their directive behaviors were integrated into other interactional behaviors. Mahoney found variations in maternal directiveness and communicative responsiveness as a function a) of increasing child age and cognitive competence (Mahoney, 1988a) and b) of children's level of participation in the interaction (Mahoney, 1988b).

Second, there is the need to examine maternal directiveness in relation to other maternal interactional behaviors. In particular, the implicit equation of directiveness with intrusiveness and lack of sensitivity needs to be subjected to empirical testing. Both Crawley and Spiker (1983) and Marfo (1990) have questioned the theoretical soundness of the inference that equates directiveness with intrusiveness and lack of sensitivity. One of the earliest pieces of empirical evidence to shed some light on this issue comes from a study on maternal control techniques involving two samples of mothers and their normally developing infants (Schaffer & Crook, 1979). These researchers found that nearly half of all the verbal utterances made by mothers to their 15-month-old (47%) and 24-month-old (44%) infants were control or directive utterances. Explaining why the infants in this study were not overwhelmed, even in the wake of such a barrage of controls, Schaffer and Crook noted the remarkable sensitivity with which mothers used directives. Maternal directive behaviors, according to the researchers, "did not descend in bolt-out-of-the-blue fashion but were timed to ensure maximum effectiveness by taking into account the child's focus of attention at the time" (p. 995). The Schaffer and Crook study thus demonstrated that directiveness and sensitivity are not necessarily incompatible interactional attributes.

In the mental retardation and developmental disabilities literature, Crawley and Spiker's (1983) study is perhaps the only one to have examined both the relationships among directiveness, intrusiveness, and sensitivity, and the manner in which these maternal interactional attributes are related to child developmental competence and behavioral engagement. Their results confirmed that directiveness and sensitivity are not necessarily mutually exclusive maternal interactional qualities. Moreover, their results showed that child

developmental competence may be related to a maternal style which combines sensitivity and directiveness in ways that provide stimulation value.

While the Crawley and Spiker findings are intuitively appealing and are beginning to shape the way in which maternal directiveness is conceptualized in the mental retardation literature, they remain to be replicated by other researchers. Indeed, no other study known to this author has attempted to measure sensitivity, directiveness, and intrusiveness as separate constructs. Most studies have made inferences about sensitivity and intrusiveness based on ratings or frequency counts of directiveness. By measuring these maternal interactional attributes separately, the present study sought to test the replicability of aspects of the Crawley and Spiker findings.

Reflecting the need for a strong individual differences focus, the present study was designed to examine the interactions of a group of mothers and their developmentally delayed children, with three specific purposes in mind. The first was to test the proposition that directiveness occurs at the expense of other maternal behaviors that are traditionally acknowledged to be developmentally enhancing -- e.g., sensitivity, responsiveness, and warmth. The second was to examine directly the relationship between directiveness and intrusiveness. The third was to examine the extent to which maternal interactional behaviors vary as a function of a) child developmental competence and b) on-line child behavioral engagement.

The present investigation differed from the Crawley and Spiker (1983) study in at least two ways. First, maternal directive behavior was measured in two distinct ways, using two separate coding schemes and two independent sets of coders. Through a rating scale, global ratings of maternal directiveness were obtained for each of the mothers in the sample, along with ratings on eight other maternal behaviors, six child behaviors, and one dyadic behavior -- mutuality. Additionally, however, a behavior count coding system was used to record the frequency of occurrence of four classes of maternal directive behavior. These classes were: a) turntaking control (the extent of turntaking imbalance in favor of the mother), b) response control (the tendency to use commands, command questions, and other verbal and nonverbal requests to elicit performance/responses from the child), c) topic control (the extent to which the topics or events of interaction are chosen and driven by the

mother), and d) inhibitive control (the extent to which the mother restricts, interferes with, or terminates child-initiated behavior/activity). These classes of directive behavior are based on Marfo's (1990) classification of operational definitions of directiveness identifiable in the literature (see also Tannock, 1988). The definition of directiveness on the rating scale mainly reflected a focus on response control and, to some extent, topic control. Maintaining this definition was necessary for replication purposes. Thus, the rationale for obtaining behavior count measures of all four classes of directive behavior was to ascertain the extent to which claims made about directiveness on the basis of global ratings can be said to be true of all dimensions of directiveness.

The second difference was that in the Crawley and Spiker study, not all the maternal behaviors were rated on the 5-point Likert scale; unlike the six key behaviors, intrusiveness and pacing were rated on a dichotomous scale. In the present study, however, all the rating scale behaviors were rated on the same 5-point scale. Consequently, the relationships among directiveness, intrusiveness, and sensitivity could be assessed directly through correlational analyses.

METHOD

Subjects

The subjects in the study were 25 mothers and their developmentally delayed children (15 boys and 10 girls), ranging in age from 30 to 70 months (Mean=45.5; SD=12.2), who had recently been enrolled in an early intervention program. The dyads were recruited from the caseloads of five early intervention workers. After obtaining permission from the Progam Coordinator, the researcher met with the five intervention workers to explain the study and to solicit their assistance in recruiting participants. To be included in the study, parents had to be the natural parents and the children had to be between ages 2 and 5 years. Written requests for participation were circulated to all families with mothers and children who met these two basic criteria. Requests were worded to assure parents that they could refuse participation without fear of retribution from program personnel. Although the planned sample size was 30, the recruitment exercise produced only 25 dyads -- all Caucasian.

Almost half of the sample of children (n=11) were identified in program records as

having a developmental delay of unknown etiology. The rest of the sample was made up of children with the following diagnostic conditions: Down syndrome (n=5); cerebral palsy (n=4); hydrocephalus (n=2); spina bifida (n=2), and Ricketts syndrome (n=1). Although the children had a mean CA of 45.5 months, their mean communicative and cognitive age equivalents, as measured on the Battelle Developmental Inventory (Newborg, Stock, Wnek, Guidubaldi, & Svinicki, 1984), were 23.62 (SD=9.74) and 28.62 (SD=12.74) months respectively. These age equivalent scores tranlate into developmental quotients of 50.29 (SD=12.60) for communicative competence and 59.79 (SD=13.33) for cognitive competence.

Mothers' ages ranged from 22 to 38 years (Mean=29; SD=4.6). Sixty-five percent of the mothers had up to high school education; 25% had vocational or some college education, and 10% had undergraduate or graduate education. Ninety percent of the mothers were married.

Procedures:

Mother-child dyads were videotaped in their own homes during a 20-minute interaction session. Videotaping was done by each family's own intervention worker in a family/living room. All the intervention workers were trained to use uniform procedures for the videotaping. The first 3 minutes of the interaction involved a structured ring-stacking task. This was followed immediately by 15 minutes of semi-structured free play around eight play materials presented to the mother in a box (stacking rings and pole; xylophone; ball; picture book; set of building/nesting blocks, toy-car telephone, mirror and hairbrush, and a toy vehicle with movable wooden figures). Finally, during the last 2 minutes, mothers were requested to get their child to put the toys away in the box. The standard instruction given to all parents was as follows:

> We are interested in observing _____ (name of the child) in a play session with you. Please try and pretend as if I am not here, and play with _ _____ as you would normally do. You can use all or some of the toys provided in any way you and _____ wish. Before the play session, however, we would like you to spend some three minutes trying to get _____ to stack as many of these rings (show rings) as he/she can on the stacking pole.

I will signal to let you know when to begin or stop an activity. After the 15 minutes of free play, we would like you to get the child to put the toys away in the toy box. You will have 2 minutes to do that, and I will let you know when to start and stop.

The data reported in this paper are based only on the 15-miunte free-play session.

The Behavioral Ratings:

Each 15-minute free-play segment was rated by two independent raters, using a 5-point Likert scale with items adopted from two instruments reported in similar research (Crawley & Spiker, 1983; Mahoney, Finger, & Powell, 1985). The instrument included six child behaviors, nine maternal behaviors, and one dyadic behavior (mutuality). Beside the primary rater, a second person rated all 25 tapes for the purpose of establishing reliability. Agreement within one scale point ranged from 80% to 100%. Inter-rater agreement for each of the behaviors was assessed formally using Finn's (1970, 1972) procedure for ascertaining the reliability of categorical data. Like Cohen's Kappa, Finn's r controls for chance agreement, but Whitehurst (1984) has recently demonstrated the relative superiority of Finn's r over Kappa. Finn r's were in the good to excellent range: .85 to .96 for children's behaviors and .75 to .93 on maternal behaviors. Each of the behaviors on the scale is described below, with the reliability coefficients indicated in parentheses.

Child Behaviors:

Play maturity (.95): Level of play, ranging from simple banging and mouthing of toys to appropriate and functional use of toys, as in pretend play.

Interest (.96): The extent to which toys available or presented during the interaction captured the child's attention and interest; the disinterested child stares into space, locomotes or stares away from toys, or performs other activity indicating lack of interest, while the interested child consistently focuses attention either on own toys or on activity performed by mother.

Social initiative (.96): The degree to which the child initiates social interactions, ranging from no initiation to consistent use of a wide variety of initiating behaviors (e.g., pointing to, talking to, visually checking with mother).

Object initiative (.85): The extent to which the child initiates activities with toys/objects independently of maternal prompting, ranging from no independent initiations and passivity to consistent independent initiation.

Social responsiveness (.93): The degree to which the child responds to mother's initiations; the nonresponsive child consistently ignores or actively resists mother's initations, while the responsive child eagerly and appropriately responds (e.g., through visual attention, attempted compliance, or compliance to most maternal initiations).

Affect (.94): The extent to which the child expresses positive affect toward the mother, ranging from expressions of negative affect to consistent expression of some form of positive affect (e.g., smiles, squeals, laughter, hugs).

Maternal Behaviors:

Warmth (.89): The degree to which the mother displays positive affect toward the child, ranging from rejection, disapproval, and nonacceptance to consistent use of such affective behaviors as hugging, patting, carressing, kissing, and verbal endearments.

Sensitivity (.89): The extent to which the mother shows awareness of and reads the child's verbal and nonverbal cues and signals; low sensitivity mothers often ignore the child's cues and hardly ever watch out for or comment on the child's interest, while high sensitivity mothers constantly read the child's cues and monitor his/her behavior and interest.

Stimulation value (.85): The extent to which the mother explicitly orients her interactions toward providing optimum cognitive, social, or linguistic stimulation to the child; low stimulation value is reflected in low inclination to capitalize on teachable moments, while high stimulation value is characterized by behaviors and activities that are conspicuously high in instructional value.

Responsiveness (.89): The extent to which the mother responds appropriately to the child's cues and signals, interests, and overt behaviors; unresponsive mothers often ignore even the most obvious invitations from the child, while highly responsive mothers often respond promptly and appropriately to child-initiated activities and behaviors.

Elaborativeness (.77): The extent to which the mother follows, expands, or elaborates on child's responses and self-initiated behaviors; nonelaborative mothers rarely ever extend

the child's utterances and behaviors, while highly elaborative mothers demonstrate clear awareness of the importance of expanding on the child's utterances and behaviors in a prompt fashion.

Wait time (.75): The extent to which the mother waits for the child to respond to action and information requests, ranging from a strong tendency to deny response opportunity to a very high incidence of conscious anticipatory pauses following requests.

Pacing (.89): The rate of mother's behavioral output, measured independently of child's response opportunities, ranging from near inactivity to a rather rapid tempo.

Directiveness (.89): The extent to which the mother uses hints, requests, commands, and other controlling behaviors and/or actions to get the child to do her wishes and follow her lead, ranging from only occasional use of commands and requests to consistent use.

Intrusiveness (.85): The extent to which the mother initiates, intervenes, or elaborates so abruptly as to be almost disruptive of child's ongoing behavior and initiative, ranging from very frequent inhibitive interventions to carefully paced interventions that show strong regard for child's initiative.

The dyadic behavior, mutuality (.93), measured the extent to which both mother and child appeared to be tuned into each other's behaviors and activities, with low mutuality being characterized by frequent parallel activity or conflict and high mutuality being characterized by harmony and strong commonality of purpose.

Behavior Counts of Directiveness and Intrusiveness:

Frequencies of the four classes of maternal directive behavior defined earlier (turntaking control, topic control, response control, and inhibitive control) and a fifth behavior -- intrusiveness -- were obtained using a multiple-pass behavior count coding system and a different pair of coders. Again, beside the primary coder, the second person coded all 25 tapes for the purpose of establishing reliability. Under the MULTI-PASS coding scheme (Marfo, 1989), a coder views each tape three times (three passes through the tape), each time coding only a small set of behaviors. The behavior count data reported in this study were obtained from Passes 1 and 2 of the instrument. In Pass 1, both maternal and child behavior were coded into turn types, using a procedure orginally developed by Kaye

and Charney (1980) and used extensively by Mahoney and his associates to analyze the interactions of mothers and their Down syndrome infants and toddlers (e.g., Mahoney, 1988b; Mahoney, Fors, & Wood, 1990; Mahoney & Robenalt, 1986). A turn was defined as "any behavior unit produced by one person during the course of interaction" (Mahoney et al., 1990, p. 401). It could take the form of a single utterance with accompanying gestures, two or more utterances strung together, or a nonverbal act.

Four turn types, defined as follows, were coded: mand, a turn requiring a response from the other person; response, a turn that is a response to the other person; response-mand, a turn that is both a response to a preceding turn and a request for a response from the other person; unlinked, a turn that could not be classified as any of the above. The four turn types were coded in two modalities (verbal and nonverbal), resulting in eight behavior categories. Inter-rater reliabilities for maternal behaviors, calculated with the formula (agreements) / (agreements + disagreements), were: verbal mand (.95), nonverbal mand (.98), verbal response (.91), nonverbal response (.95), verbal response-mand (.98), nonverbal response-mand (1.00), verbal unlinked (.89), and nonverbal unlinked (.85).

Two of the four indexes of maternal directive behavior were derived from computations involving these eight behavior categories. Maternal turntaking control was calculated as the proportion of all turns (summation of the frequencies of all eight maternal and eight child behaviors) that were maternal turns. Maternal response control was calculated as the frequency per minute of all verbal mands, nonverbal mands, verbal response-mands, and nonverbal response-mands.

The two remaining indexes of maternal directive behavior and the index of maternal intrusiveness were coded during Pass 2 of the coding process. The following five maternal behaviors, with their definitions and inter-rater reliabilities provided, were coded in this Pass: topic initiation (.94), starting any identifiable verbal or nonverbal event or activity, such as play with a toy, a game, a song, or a conversation about an object or a subject; topic following (.97), responding to the child's topic initiation; verbal inhibition (.98), any verbal utterance directed at the child with the goal of stopping him/her from engaging in an activity or behavior that is generally not considered dangerous or undesirable; nonverbal inhibition (.1.00), any nonverbal behavior for accomplishing the goal stated under the

preceding category; intrusiveness (.99), any behavior, verbal or nonverbal, that tends to cut rather abruptly into an activity initiated by the child -- ignoring the child's interest and leading to the imposition of maternal agenda almost as soon as the child initiates the activity.

The maternal topic control index was calculated as the frequency of maternal topic initiations divided by the sum of maternal and child topic initiations. Inhibitive control was computed as the frequency per minute of all verbal and nonverbal inhibitions. Intrusiveness was derived as the frequency of intrusive behaviors per minute of interaction.

RESULTS

Relationship of maternal directiveness and intrusiveness to other maternal behaviors

Correlations among maternal behavior ratings: The correlational pattern (see Table 1) revealed two clear clusters of maternal behaviors. The first cluster consisted of five positively intercorrelated behavior categories: warmth, sensitivity, responsiveness, elaborativeness, and wait time. The correlations among these five behavior categories were very strong, with only one coefficient falling below .50 (mean $r = .66$; range: .35 to .85). The second cluster consisted of three positively intercorrelated behaviors (directiveness, pacing, and intrusion) which tended to be either unrelated to or negatively correlated with the Cluster 1 behaviors. Of these three behavior categories, the only one to show a consistent pattern of negative correlations with Cluster 1 behaviors was intrusiveness. None of the correlations between pacing and the Cluster 1 behaviors was statistically significant. Directiveness correlated significantly (and negatively) with only one of the Cluster 1 behaviors (wait time), suggesting that while directive mothers may tend to deny their children response opportunities, directiveness does not necessarily preclude or suppress warmth, sensitivity, responsiveness, and elaborativeness.

Insert Table 1 about Here

Relating maternal behavior ratings to behavior count measures of directiveness: Table 2 reports two classes of correlational data: a) correlations among the four behavior

count measures of directiveness and b) correlations between the behavior count measures of directiveness and the maternal behavior ratings. A key finding that must be highlighted at the outset is the small degree of consistency between the directiveness rating and the behavior count measures of directiveness. Although the shared variances are relatively small, mothers receiving higher directiveness ratings tended to produce more turntaking ($r = .53$, $p < .01$), response ($r = .44$, $p < .05$), and topic ($r = .47$, $p < .01$) controls.

Insert Table 2 about Here

There was not even a single negative correlation betweeen any of the behavior count measures of directiveness and the Cluster 1 behavior ratings. On the contrary, significant positive correlations were found between three of the behavior count measures of directiveness and two Cluster 1 behavior ratings. Mothers who were relatively high on turntaking control, response control, and topic control tended also to be high on warmth and elaborativeness. Additionally, mothers showing greater turntaking control also tended to show greater sensitivity. While these results are different from those obtained in the analysis of behavior ratings alone, they reinforce the earlier interpretation that directiveness does not necessarily preclude sensitivity, elaborativeness, responsiveness, or warmth.

Perhaps one of the more intriguing results is the relationship between intrusiveness and directiveness. Recall that the directiveness and intrusiveness ratings were positively correlated ($r = .53$, $p < .01$; Table 1). This significant relationship was not corroborated by the correlational data reported in Table 2. None of the four behavior count measures of directiveness correlated significantly with the intrusiveness rating (see bottom of Table 2).

Correlations among Cluster 1 behaviors, mutuality, directiveness, and intrusiveness: As seen in Table 1, mutuality between mother and child was significantly related to each of the five Cluster 1 behaviors. Thus dyads manifesting greater mutuality in their interactions had warm, sensitive, responsive, and elaborative mothers who also more often provided wait time in anticipation of child response. Directiveness was not related to mutuality, but dyads with more intrusive mothers manifested less mutuality in their interactions. It appears from these results, again, that intrusiveness may be more closely

associated with suboptimal interactions than directiveness.

Relationships between maternal behaviors and child developmental competence

Maternal behavior ratings: Table 3 reports correlations between maternal behavior ratings and child developmental and interactional characteristics. While the Cluster 1 behaviors did not appear to be associated in any systematic manner with the three child competence indices (communication, cognition, and play maturity), two of the three Cluster 2 behaviors were clearly associated with all three child competence measures. Mothers tended to be more directive and more fast-paced in their interaction with developmentally less competent children. No significant relationships were found between maternal intrusiveness and child competence.

Insert Table 3 about Here

Behavior count measures of maternal directiveness: Correlations between the four behavior count measures of maternal directiveness and child developmental and interactional characteristics are reported in Table 4. The data show clearly that mothers tended to be more directive with developmentally less competent children. Across the board, all four categories of directive behavior (turntaking, response, topic, and inhibitive control) correlated negatively with cognitive competence and play maturity.

Insert Table 4 about Here

Relationships between maternal behaviors and child interactional behaviors

Maternal behavior ratings: The correlational data reported in the bottom half of Table 3 show a good number of significant relationships between maternal behavior ratings and child interactional behavior. Maternal directiveness and interactional pacing were associated negatively with a cluster of three child behaviors: social initiative, object initiative, and social responsiveness. Directiveness correlated negatively with social initiative ($r=-.57$, $p<.01$) and object initiative ($r=-.71$, $p<.001$), while pacing correlated negatively with social

initiative (r=-.62, p<.001) and social responsiveness (r=-.41, p<.05). In contrast, maternal wait time correlated positively with child interest (r=.49, p<.05), object initiative (r=.46, p<.05), and social responsiveness (r=.59, p<.01).

Thus, mother's interactions tended to be more fast-paced with children who showed less social initiative and responsiveness, and more directive with children who showed less initiative in terms of social interactions and interactions around objects. On the other hand, mothers whose children showed greater interest, object initiative, and social responsiveness tended to provide wait time more frequently.

Behavior count measures of maternal directiveness: As the correlational data in the bottom half of Table 4 show, all four types of maternal directive behavior correlated negatively with two child interactional behaviors: social initiative and object initiative. The interactions of children who showed less social initiative tended to be characterized by greater turntaking control (r=-.52, p<.01), greater response control (r=-.47, p<.01), and greater inhibitive control (r=-.41, p<.05), while mothers of children who initiated fewer interactions around objects tended to use more topic controls (r=-.64, p<.001), more turntaking controls (r=-.42, p<.05) and more response controls (r=-.41, p<.05).

Relationships between child developmental competence and child interactional behaviors

As Table 5 shows, children's behavioral input during interaction was not the same for all children. Key interactional attributes, such as social initiative, object initiative, and social responsiveness tended to vary as a function of child cognitive competence and/or play maturity. In particular, developmentally more competent children tended to initiate more social interactions and more interactions around play things.

Insert Table 5 about Here

DISCUSSION

This study addressed three central questions: a) the nature of the relationship between directiveness and other maternal behaviors considered traditionally to be facilitative

of child development, b) the relationship between directiveness and intrusiveness, and c) the extent to which maternal directiveness is related to child developmental competence and on-line child interactional behavior.

The evidence presented on the first two questions is consistent with findings reported by Crawley and Spiker (1983) and does challenge some of the commonly held assumptions about the nature of directiveness and its potential role in child development. The present study, like Crawley and Spiker's, revealed a cluster of highly interrelated behaviors which neither included directiveness nor was negatively correlated with it. This cluster included sensitivity, responsiveness, elaborativeness, warmth, and wait time (labeled Cluster 1 behaviors). The inverse relationship found between directiveness and wait time (the only Cluster 1 behavior to be associated with directiveness) does suggest that directive mothers had the tendency to deny their children response opportunities. However, the absence of significant relationships between the directiveness rating and the other Cluster 1 behaviors (warmth, sensitivity, responsiveness, and elaborativeness) suggested that directiveness may not necessarily preclude or suppress those behaviors traditionally held to be facilitative of children's development. Indeed, the correlations between the directiveness rating and the four behavior count measures of directiveness produced evidence that some mothers did combine directiveness with warmth, sensitivity, and elaborativeness. The consistent pattern of significant negative correlations between intrusiveness and each of the Cluster 1 behaviors suggested, on the other hand, that intrusion is much less compatible with warmth, sensitivity, responsiveness, elaborativeness and wait time. In other words, intrusiveness is much less compatible with maternal behaviors generally considered to have enhancing effects on children's development of competence.

Further support for the foregoing interpretation comes from the correlations of directiveness and intrusiveness with mutuality between mother and child. Mutuality, which correlated highly and positively with all Cluster 1 behaviors, was inversely related to intrusiveness but not to directiveness, suggesting, once again, that intrusiveness is closely associated with suboptimal interactions while directiveness is not. If the interpretations offered here are valid, then the most dysfunctional interactional scenario is likely to be a combination of high directiveness and high intrusiveness. In this study, there was some

evidence of these two behaviors being moderately related in the behavioral ratings data, although this pattern was not replicated when the intrusiveness rating was correlated with the four behavior count measures of directiveness. Further examination of the relationship between these two variables is certainly warranted.

Regarding the third question, the correlational analyses involving child characteristics and a) ratings of directiveness and pacing and b) behavior count measures of directiveness converged to indicate clearly that both children's cognitive competence and their level of behavioral input were significant sources of variation in maternal directiveness. Mothers tended to be more directive both with children who were less cognitively competent (in terms of both Battelle Developmental Inventory scores and play maturity during interaction) and with children who were less active in initiating or responding to interaction. These results are only slightly different from those obtained in the Crawley and Spiker (1983) study. In that study, no significant relationships were found between the maternal directiveness rating and child developmental competence as measured in terms of the Bayley MDI or maturity of play during the interaction. In both studies, however, maternal directiveness varied as a funtion of two child interactional attributes -- interest and object initiative in the Crawley and Spiker study and object initiative and social initiative in the present study.

These within-group variations call into question the traditional connotation that high directiveness somehow represents a uniform interactional style that is associated with the presence of a handicap per se. The data presented in this paper suggest that child developmental competence and level of behavioral engagement are possibly two additional factors accounting for mother's use of directiveness in their interactions with their developmentally delayed children.

Consistent with the principle of bidirectionality, a significant inverse relationship between maternal directiveness and children's behavioral input can be interpreted in at least two ways. It may be either indicative of a tendency for maternal directive behaviors to suppress child interactional input (the suppression hypothesis) or suggestive of a tendency for children's on-line interactional behavior to drive maternal directive behavior (the child-driven hypothesis). According to the child-driven hypothesis (see Field, 1980, 1983; Mahoney

et al., 1990), high directiveness may reflect an adaptive maternal interactional strategy designed to increase the child's activity level. While both explanations are plausible, it is doubtful that the suppression hypothesis accounts for the inverse relationships between child behavior and maternal directiveness observed in this investigation. The finding that cognitively less competent children were less responsive and less active in initiating interaction, render these results more consistent with an explanation based on the child-driven hypothesis.

The child-driven hypothesis explanation is consistent with Bell's control theory (Bell & Harper, 1977), which views parent-child interaction as a bidirectional, reciprocal process. According to this theory, both parent and child exert two types of control (upper-limit and lower-limit) on each other's behavior, depending upon "the intensity, frequency, or situational appropriateness of behavior shown by the other" (p. 65). On the part of the parent, upper-limit controls serve to redirect or reduce excessive and/or inappropriate behavior, while lower-limit controls seek to stimulate and prime child behavior in situations where child behavior is perceived to be below an acceptable standard. Maternal behaviors which come under the general rubric of directiveness are essentially lower-limit control behaviors. Viewed from this perspective, high maternal directiveness appears to be a form of adaptive-strategic parenting behavior rather than an aberrant or pathological interactional style.

Further support for the adaptive-strategic behavior hypothesis comes from the differential pattern of variation observed for Cluster 1 and Cluster 2 behaviors (see Table 1). Generally speaking, with the exception of wait time, there was relatively less variation in Cluster 1 behaviors (warmth, sensitivity, responsiveness, elaborativeness) as a function of child competence or child behavioral engagement. Conversely, Cluster 2 behaviors, in particular directiveness and pacing, tended to vary significantly as a function of both child competence and on-line child interactional behavior. Thus, while mothers appeared to exhibit Cluster 1 behaviors to the same degree, regardless of children's developmental and interactional characteristics, they appeared to have adopted and adapted directiveness as a purposeful strategy for developmentally less competent and behaviorally less active children. Conceivably, this reflects important differentiations that parents make regarding the

developmental needs of handicapped children; that is, while all children need warmth, sensitivity, and responsiveness from their primary caregivers, handicapped children require additional input to increase their levels of behavioral engagement and stimulate development. This finding may very well explain, at least in part, why in between-group contrastive studies measures of directiveness, rather than behaviors of the Cluster 1 type, have often emerged as the main difference between mothers of handicapped and nonhandicapped children.

The evidence from this study that directiveness has the tendency to deny children response opportunities does raise a concern about the long-term developmental implications of excessive directiveness in interactions with developmentally delayed children. In various studies, Mahoney and his associates have raised this concern, based on data pointing to the potentially counter-productive developmental ramifications of this maternal interactional style (e.g., Mahoney, 1988a; Mahoney & Robenalt, 1986). It must be pointed out, however, that the question of long-term developmental effects will not be resolved through one-shot correlational or experimental research designs. Causal longitudinal designs that examine directiveness in the context of a broad range of other maternal behaviors are required to address this question adequately.

Finally, regardless of whether researchers are interested in individual differences within groups of handicapped child-mother dyads or in exploratory studies of differences in the interactional styles of mothers of handicapped and nonhandicapped children, one exhortation appears timely on the basis of the evidence presented in this and the Crawley and Spiker study. It is that the relationships that exist among directiveness, intrusiveness, sensitivity, and child competence should be assessed directly rather than inferred. The tradition of making inferences about intrusiveness and sensitivity purely from observed levels of directiveness alone, if continued, may only serve to perpetuate existing myths.

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Table 1.
Correlations among Maternal Behavior Ratings

	Warmth	Sensivity	Responsiv	Elaborativ	Wait Time	Stim Value	Pacing	Directiv	Intrusiv	Mutuality
Warmth	–	.74***	.68***	.80***	.52**				-.52**	.78***
Sensitivity		–	.85***	.59**	.75***			-.20	-.59**	.76***
Responsiveness			–	.56**	.80***			-.30	-.63**	.67***
Elaborativeness				–	.35		.20	.28	-.35	.69***
Wait time					–		-.30	-.50*	-.80***	.53*
Stimulation value						–	-.23			
Pacing							–	.61**	.29	
Directiveness								–	.53**	
Intrusiveness									–	-.48*
Mutuality										–

Only correlation coefficients that are above .20 or above are reported in this table
*$p < .05$; **$p < .01$; ***$p < .001$ (2-tailed)

Table 2.
Correlations a) among Behavior Count Measures of Maternal Directiveness and b) between Behavior Count Measures of Directiveness and Maternal Behavior Ratings

	Behavior Count Measures			
	Turntaking Control	Response Control	Topic Control	Inhibitive Control
a) Behavior Count Measures				
Turntaking control	--	.42*	.44	
Response control		--	.51**	.43*
Topic control			--	.40*
Inhibitive control				--
b) Behavior Ratings				
Warmth	.50**	.47**	.47**	
Sensitivity	.40*	.22	.25	
Responsiveness				
Elaborativeness	.41*	.49**	.48**	
Wait time				
Stimulation value				
Pacing	.57**	.41*	.20	.20
Directiveness	.53**	.44*	.47**	.27
Intrusiveness				
Mutuality	.32	.32	.47**	.23

Only correlations that are .20 or above are reported in this table.
*p<.05; **p<.01; ***p<.001 (2-tailed)

Table 3.
Correlations between Maternal Behavior Ratings and Child Developmental and Interactional Characteristics

	Maternal Behavior Ratings									
	Warmth	Sensitivity	Stim Value	Responsiv	Elaborativ	Wait Time	Pacing	Directiv	Intrusiv	Mutuality
Child Competence										
CA	-.24	-.21	.34	-.21						- .31
Communication[1]							-.50*	-.43*	-.22	
Cognitive[1]	-.48*				-.30		-.66**	-.54*		-.25
Play maturity	-.22		.38				-.46*	-.25		
Child Behavior										
Interest		.23		.38	.34	.49*	-.20		.28	
Social initiative			.28			.31	-.62***	-.57**	-.37	-.26
Object initiative	-.22				-.36	.36	-.25	-.75***	-.33	-.26
Social responsiveness		.33		.40		.59**	-.41*	-.31	-.37	.40*
Affect	.34	.34		.31	.41*	.27			-.25	.45*

Only correlation coefficients that are .20 or above are reported in this table.
[1]Correlation coefficients involving these two variables are based on an n of 21, instead of 25.
*p < .05; **p < .01; ***p < .001 (2-tailed)

Table 4.
Correlations between Behavior Count Measures of Maternal Directiveness and Child Developmental Characteristics

	Turntaking Control	Response Control	Topic Control	Inhibitive Control
Child Competence				
CA	-.25			
Communication[1]	-.42*	-.24	-.27	-.44*
Cognitive[1]	-.67**	-.43	-.58**	-.42
Play maturity	-.56**	-.47**	-.40*	-.54**
Child Behavior				
Interest		-.26	-.31	-.54**
Social initiative	-.52**	-.47**	-.31	-.41*
Social responsiveness		-.28		
Object initiative	-.42*	-.41*	-.64***	-.26
Affect	.31			

[1]Correlation coefficients involving these two variables are based on an n of 21, instead of 25.
Only correlation coefficients that are .20 or above are reported in this table.
*p<.05; **p<.01; ***p<.001 (2-tailed)

Table 5.
Correlations among Child Developmental and Interactional Characteristics

	CA	Communication	Cognition	Play Maturity	Interest	Social Initiative	Social Responsiveness	Object Initiative	Affect
CA	–		.42*	.45*		.46*			
Communication[1]		–	.65**						-.21
Cognition[1]			–	.35		.45*	.34	.40*	
Play maturity				–	.31	.54**	.30	.44*	
Interest					–	.30	.60**		.65***
Social initiative						–	.33	.33	
Social responsiveness							–		.56**
Object initiative									-.26
Affect									–

Only correlation coefficients that are .20 or above are reported in this table.
[1]Correlation coefficients involving these two variables are based on an n of 21, instead of 25.
*$p < .05$; **$p < .01$; ***$p < .001$ (2-tailed)